

UNEP/POPS/POPRC.15/7

Distr.: Limited 16 October 2019 Original: English



Stockholm Convention on Persistent Organic Pollutants

Persistent Organic Pollutants Review Committee Fifteenth meeting

Rome, 1-4 October 2019

Report of the Persistent Organic Pollutants Review Committee on the work of its fifteenth meeting

I. Opening of the meeting

- 1. The fifteenth meeting of the Persistent Organic Pollutants Review Committee was held at the headquarters of the Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, from 1 to 4 October 2019.
- 2. The Chair, Ms. Estefania Moreira (Brazil), declared the meeting open at 9.30 a.m. on Tuesday, 1 October 2019. Welcoming the members of the Committee and observers, she invited Mr. Rolph Payet, Executive Secretary of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants, to deliver opening remarks.
- 3. Mr. Payet began by recalling that, thanks to the Committee's work, dicofol and perfluorooctanoic acid (PFOA) its salts and PFOA-related compounds had recently been listed in Annex A to the Convention by the Conference of the Parties, bringing the number of chemicals regulated under the Convention to 30. Since the Convention's entry into force in 2004, the Committee's work had significantly broadened the scope of the Convention, leading to the listing of 18 chemicals in Annexes A, B and/or C based on rigorous scientific review. The members' scientific work was not only critical to providing the Conference of the Parties with a solid basis for decision-making, it also informed other multilateral environmental agreements in the field of chemicals and wastes management, and supported global efforts to manage chemicals and wastes in an environmentally sound manner. The continued engagement and contribution of all stakeholders to the work under the Convention was crucial to consolidating the progress achieved in protecting human health and the environment. In closing, Mr. Payet acknowledged the leadership of Ms. Moreira, whose term of office was coming to an end, and thanked her on behalf of the Secretariat for her dedication and hard work as Chair of the Committee over the previous five years.
- 4. Following Mr. Payet's remarks, the Chair informed the members that Ms. Svitlana Sukhorebra (Ukraine), Vice-Chair of the Committee, would also serve as the Rapporteur at the current meeting.

II. Organizational matters

A. Adoption of the agenda

- 5. The Committee adopted the agenda set out below on the basis of the provisional agenda (UNEP/POPS/POPRC.15/1):
 - 1. Opening of the meeting.
 - 2. Organizational matters:
 - (a) Adoption of the agenda;
 - (b) Organization of work.
 - 3. Rotation of the membership.
 - 4. Review of the outcomes of the ninth meeting of the Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants relevant to the work of the Committee.

Technical work:

- (a) Consideration of a risk management evaluation on perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds;
- (b) Consideration of chemicals proposed for listing in Annexes A, B and/or C to the Convention:
 - (i) Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8);
 - (ii) Methoxychlor;
- (c) Review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins.
- Report on activities to support effective participation in the work of the Committee.
- 7. Workplan for the intersessional period between the fifteenth and sixteenth meetings of the Committee.
- 8. Venue and date of the sixteenth meeting of the Committee.
- 9. Other matters.
- 10. Adoption of the report.
- 11. Closure of the meeting.

B. Organization of work

The Committee agreed to conduct the meeting in accordance with the scenario note prepared by the Chair (UNEP/POPS/POPRC.15/INF/1) and the proposed schedule set out in document UNEP/POPS/POPRC.15/INF/2, subject to adjustment as necessary. The Committee also agreed to conduct its work in plenary session and to establish contact, drafting and friends of the chair groups as necessary. In considering the matters on its agenda the Committee had before it the documents listed in the annotations to the agenda (UNEP/POPS/POPRC.15/1/Add.1) and the list of pre-session documents by agenda item (UNEP/POPS/POPRC.15/INF/8).

C. Attendance

7. The meeting was attended by the following Committee members: Ms. Lucie Ribeiro (Austria), Ms. Tamara Kukharchyk (Belarus), Ms. Moreira (Brazil), Mr. Jean-François Ferry (Canada), Mr. Jianxin Hu (China), Mr. Luis Guillermo Romero Esquivel (Costa Rica), Ms. Rikke Donchil Holmberg (Denmark), Ms. Thabile Ndlovu (Eswatini), Mr. Sam Adu-Kumi (Ghana), Mr. Agus Haryono (Indonesia), Mr. Amir Nasser Ahmadi (Islamic Republic of Iran), Ms. Helen Jacobs (Jamaica), Mr. Mineo Takatsuki (Japan), Ms. Caroline Njoki Wamai (Kenya), Ms. Mantoa Sekota (Lesotho), Ms. Ingrid Hauzenberger (Luxembourg), Mr. Adama Tolofoudye (Mali), Ms. Amal Lemsioui (Morocco), Mr. Rameshwar Adhikari (Nepal), Mr. Martien Janssen (Netherlands), Mr. Peter Dawson (New Zealand), Mr. Hammad Shamimi (Pakistan), Ms. Vilma Morales Quillama (Peru), Ms. Anna Lewandowska (Poland), Ms. Victorine Augustine Pinas (Suriname),

Mr. Andreas Buser (Switzerland), Mr. Nadjo N'Ladon (Togo), Mr. Youssef Zidi (Tunisia), Ms. Svitlana Sukhorebra (Ukraine), and Mr. Anas Ali Saeed Al-Nadhari (Yemen).

- 8. The following States and regional economic integration organizations were represented as observers: Argentina, Australia, Belgium, Brazil, Canada, China, Croatia, Czechia, Democratic Republic of the Congo, Ecuador, Egypt, Ethiopia, Finland, France, Germany, Japan, Kuwait, Namibia, Norway, Oman, Republic of Korea, Russian Federation, Serbia, Slovakia, Spain, Sweden, Thailand, United Kingdom of Great Britain and Northern Ireland and United States of America.
- 9. The following intergovernmental organizations were also represented as observers: Comité Inter-Etats des Pesticides d'Afrique Centrale (Interstate Pesticides Committee of Central Africa) and the League of Arab States.
- 10. Non-governmental organizations were also represented as observers. The names of those organizations are included in the list of participants (UNEP/POPS/POPRC.15/INF/10).

III. Rotation of the membership

- 11. Introducing the item, the representative of the Secretariat drew attention to the information provided in document UNEP/POPS/POPRC.15/INF/3 on the newly appointed members of the Persistent Organic Pollutants Review Committee and forthcoming rotation of the membership in May 2020. The Conference of the Parties, by decision SC-9/10, had appointed the 14 experts who had been designated by Parties to serve as members of the Committee with terms of office from 5 May 2020 to 4 May 2024. In order to familiarize newly appointed experts whose terms of office commenced on 5 May 2020 with the mandate and operations of the Committee, those experts had been invited to participate in the current meeting as observers. The participation of those experts was made possible thanks to the generous financial support provided by the Government of Germany.
- 12. Following the ninth meeting of the Conference of the Parties, the Government of Austria had informed the Secretariat of the replacement of the expert they had designated to serve as a member of the Committee. The curriculum vitae of the replacement expert was set out in the document before the Committee, together with a summary on the rotation of the membership and the contact information of the current and newly appointed members.
- 13. Finally, he noted that the term of office of the current Chair would end on 4 May 2020 and that, pursuant to paragraph 5 of decision SC-9/10, the Committee would need to identify an interim chair to preside over its sixteenth meeting and the Conference of the Parties was to consider the election of the Chair of the Committee at its tenth meeting.
- 14. Subsequently, in accordance with decision SC-9/10, the Committee identified Mr. Peter Dawson (New Zealand) to serve as its interim Chair, pending election by the Conference of the Parties at its tenth meeting.

IV. Review of the outcomes of the ninth meeting of the Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants relevant to the work of the Committee

- 15. Introducing the item, the representative of the Secretariat outlined the information provided in document UNEP/POPS/POPRC.15/INF/4, on the outcomes of the ninth meeting of the Conference of the Parties to the Stockholm Convention relevant to the work of the Committee. He drew attention, in particular, to:
- (a) Decisions SC-9/11 and SC-9/12, on the listing of, respectively, dicofol in Annex A to the Convention without specific exemptions and perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds with specific exemptions;
- (b) Decision SC-9/13, on actions related to PFOA, its salts and PFOA-related compounds, including a review of the specific exemptions for the production and use of PFOA, its salts and PFOA-related compounds for the use of perfluorooctyl iodide for the production of perfluorooctyl bromide for the purpose of producing pharmaceutical products;
- (c) Decision SC-9/4, on perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF), amending part I of Annex B to the Convention by replacing the current listing with a new listing, and inserting a new paragraph 10 in part III of Annex B to the Convention; and

- (d) Decision SC-9/5, on actions related to PFOS, its salts and PFOSF, providing for, among other things, an evaluation by the Conference of the Parties at its eleventh meeting of the continued need for specific exemptions and acceptable purposes for those chemicals.
- 16. In addition, in its decision SC-9/23, entitled "From science to action", the Conference of the Parties to the Stockholm Convention had taken note of the road map for further engaging Parties and other stakeholders in informed dialogue for enhanced science-based action in the implementation of the Basel, Rotterdam and Stockholm conventions and had requested the Secretariat to undertake capacity-building and training activities to support Parties in taking science-based actions in the implementation of the three conventions. Thanks to voluntary contributions by the Governments of Germany and Norway, the Secretariat would implement such capacity-building activities over the following months.
- 17. Other relevant decisions adopted by the Conference of the Parties, such as decision SC-9/10, on the operation of the Persistent Organic Pollutants Review Committee, would be covered under other agenda items at the current meeting.
- 18. In the ensuing discussion, the Chair, supported by a number of members, underscored the importance of active participation by Committee members in meetings of the Conference of the Parties. In particular, she highlighted the value of Committee members' contributions to the discussion on the listing of chemicals in the annexes to the Stockholm Convention at the ninth meeting of the Conference of the Parties, which had contributed significantly to the success of the meeting by providing factual, science-based information, thereby clarifying, for instance, the scope of proposed listings and exemptions.
- 19. Several members who had participated in the ninth meeting of the Conference of the Parties expressed their views thereon. One member reiterated the view, expressed at the ninth meeting, that the granting of specific exemptions for certain chemicals by the Conference of the Parties based on information not previously reviewed by the Committee undermined the Committee's work, which was grounded in science and followed established procedures. Several other members said that while decisions adopted by the Conference of the Parties to grant exemptions not previously considered or recommended by the Committee were indeed frustrating, most of the Committee's recommendations to the Conference of the Parties at its ninth meeting had been adopted and significant progress made. One member said that it was important that Parties be able to raise their concerns on aspects outside the scientific realm during meetings of the Conference of the Parties, as managing chemicals also required consideration of a broader range of concerns, including socio-economic aspects.
- 20. Another member, reacting to a comment by the representative of an observer suggesting that the releases of PFOA, its salts and PFOA-related compounds from fire-fighting foams containing such chemicals could not feasibly be contained, as foreseen in decision SC-9/4, said that it was important for the Committee to take into account such comments in the future in order to ensure that all decisions adopted by the Conference of the Parties could actually be implemented on the ground.
- 21. The Committee took note of the information presented.

V. Technical work

A. Consideration of a risk management evaluation on perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds

- 22. In considering the sub-item, the Committee had before it a note by the Secretariat on the draft risk management evaluation for perfluorohexane sulfonic acid, its salts and PFHxS-related compounds (UNEP/POPS/POPRC.15/2) and a compilation of comments and responses relating to the draft risk management evaluation (UNEP/POPS/POPRC.15/INF/5).
- 23. Introducing the sub-item, the representative of the Secretariat recalled that, by decision POPRC-14/1, the Committee had adopted the risk profile on PFHxS, its salts and PFHxS-related compounds and established an intersessional working group to prepare a risk management evaluation that included an analysis of possible control measures for PFHxS, its salts and PFHxS-related compounds in accordance with Annex F to the Convention. The draft risk management evaluation and the comments and responses relating thereto were set out in the documents before the Committee.
- 24. Mr. Peter Dawson, chair of the intersessional working group, gave a presentation on the work of the group in developing the draft risk management evaluation.

- 25. In the ensuing discussion, general appreciation was expressed for the efforts of the working group in preparing the draft risk management evaluation. Many members drew attention to issues warranting further consideration in a contact group. Several members emphasized the need to acquire more accurate information on the intentional production and use of, and alternatives to, PFHxS, its salts and PFHxS-related compounds, as well as on their unintentional production and release. One noted that recent modelling of global emissions based on reported unintentional production had shown far lower tonnages than expected given the widespread and high levels found in human biomonitoring studies. A number of members stressed that, in the light of the apparently large amount of unreported unintentional production, the listing of the chemicals in Annex C to the Convention, in addition to Annex A, merited consideration.
- 26. A number of members underscored the importance of obtaining more specific and more accurate information on the use or unintentional presence of the chemicals in consumer products. Another member said that the confidentiality of business information was an obstacle to acquiring the information necessary to estimate intentional production and use data accurately, and to identify alternatives to current uses, which significantly increased the difficulty of making robust assessments of socio-economic issues and estimating potential waste-streams. One member said that more Parties and observers needed to submit information on production and use and that the Committee should address discrepancies and variations in specificity within the draft risk management evaluation regarding known uses of PFHxS, its salts and PFHxS-related compounds and the alternatives available for those uses.
- 27. One member highlighted the need to develop specific reference values for unacceptable levels of contamination so that Parties could begin to carry out preliminary risk evaluations of potentially contaminated sites. Countries, and in particular developing countries, also required more information on products nearing the end of their life cycle that contained the chemicals. Another member highlighted that many uses of PFHxS, its salts and PFHxS-related compounds were similar to those of perfluorooctane sulfonic acid (PFOS) and noted that questions remained regarding how to address that issue in the document. It would also be necessary to determine whether there were existing measurements of the amounts of PFHxS in current stockpiles of fire-fighting foam and whether the chemical had been added to fire-fighting foam intentionally or was present unintentionally.
- 28. One member called for greater clarity in the draft risk management evaluation with regard to how the rate at which risk concentrations grew in a particular location far from an emission source was calculated. He highlighted the need to address apparent discrepancies in the data provided for releases of those chemicals from a particular site in a given year compared to global concentrations during the same period. Another member said that including a list of abbreviations would enhance the document's readability.
- 29. The Committee established a contact group, chaired by Mr. Dawson, to further revise the draft risk management evaluation for PFHxS, its salts and PFHxS-related compounds and to prepare a draft decision based on initial text to be prepared by the Secretariat, taking into account the discussion in plenary.
- 30. Subsequently, the chair of the contact group reported back on the group's work and introduced a revised draft risk management evaluation for PFHxS, its salts and PFHxS-related compounds and a draft decision on the matter.
- 31. General support was expressed for the draft risk management evaluation and the draft decision, with several members proposing specific editorial changes. Many members expressed support for making available an indicative list of 147 chemicals with CAS numbers referred to in the draft risk management evaluation and the development of a system for regularly updating the non-exhaustive list of chemicals, similar to the process adopted by the Conference of the Parties for PFOA. Several members underscored the need to ensure that chemicals introduced to replace PFHxS did not pose similar or additional threats to human health and the environment and suggested drawing attention to that need in the draft decision.
- 32. One member expressed support for the comment made by the representative of an observer that products containing PFHxS, its salts and PFHxS-related compounds not be shipped to developing countries. Referring to the relevant Harmonized System custom codes would facilitate the identification of chemicals by customs and the prevention of such unwanted imports. Responding to a number of members who noted their preference that the draft risk management evaluation employ a broader definition of PFHxS used by the European Union in its regulatory system, which had not been taken up by the contact group, the chair of the group said that that had been considered. It was however concluded that the group preferred to maintain the chemical identity used in the risk profile

and was of the opinion that there was insufficient scientific justification for such a change in the draft risk management evaluation.

- 33. The Committee established a drafting group, chaired by Mr. Dawson, to further revise the draft risk management evaluation for PFHxS, its salts and PFHxS-related compounds and the draft decision, taking into account the discussion in plenary.
- 34. Subsequently, the representative of the Secretariat introduced a revised version of the draft risk management evaluation for perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds and a revised version of the draft decision on the matter, both of which had been prepared by the drafting group taking into account the discussion held in plenary. The Committee then adopted decision POPRC-15/1, by which it adopted the risk management evaluation for perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds (UNEP/POPS/POPRC.15/7/Add.1); decided to recommend to the Conference of the Parties that it consider listing PFHxS, its salts and PFHxS-related compounds in Annex A to the Convention without specific exemptions; noted that in order to support Parties and observers and to facilitate the identification of chemicals, an initial indicative list of PFHxS, its salts and PFHxS-related compounds had been prepared as set out in document UNEP/POPS/POPRC.15/INF/9; and recommended to the Conference of the Parties, should it decide to list PFHxS, its salts and PFHxS-related compounds in Annex A to the Convention, that it establish a process for the identification of substances covered by such a listing, taking into account the process established for perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds as set out in paragraphs 7 to 9 of decision SC-9/13.
- 35. The decision is set out in annex I to the present report.

B. Consideration of chemicals proposed for listing in Annexes A, B and/or C to the Convention

- 1. Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8)
 - 36. In considering the sub-item, the Committee had before it notes by the Secretariat on a proposal by Norway to list Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8) in Annexes A B and/or C to the Stockholm Convention (UNEP/POPS/POPRC.15/5) together with the Secretariat's verification of whether the proposals to list chemicals in Annexes A, B and/or C to the Convention contained the information specified in Annex D to the Convention (UNEP/POPS/POPRC.15/INF/6/Rev.1).
 - 37. Ms. Christel Olsen introduced the proposal on behalf of Norway.
 - 38. Several members expressed appreciation to the Government of Norway for preparing the proposal, with some noting that specific issues, statements and citations contained in the proposal required clarification and further discussion in a contact group. One member said that while in all likelihood the chemical proposed for listing met the screening criteria specified in Annex D, the information on adverse effects contained in the proposal required additional discussion. Another member noted that while the main use of Dechlorane Plus was as a flame retardant, it would be important to know whether current or past uses included use as a pesticide as that would have an impact on future discussions on potential control measures.
 - One member observed that while Dechlorane Plus had received increasing attention in the published scientific literature, some types of data remained very limited. While modelling and data including monitoring in sediments did support the conclusion that Dechlorane Plus met the persistence screening criteria, other experimental data on abiotic degradation were less reliable. Laboratory data on bioaccumulation did not demonstrate that the chemical met the criteria, but evidence from field studies did. Information in the proposal demonstrated sufficiently the potential for long-range environmental transport and the chemical had been identified as one of emerging Arctic concern by the Artic Monitoring and Assessment Programme. Most difficult to evaluate were the criteria of adverse effects. There was an incomplete data set on genotoxicity and there were no chronic or robust reprotoxicity studies in laboratory animals and a lack of a health-based reference value in, for example, the European Union.
 - 40. The Committee established a contact group, chaired by Ms. Helen Jacobs (Jamaica), to review the proposal to list Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8) in Annexes A, B and/or C to the Convention, and to prepare a draft decision based on initial text to be prepared by the Secretariat, taking into account the discussion in plenary.

- 41. Subsequently, the Committee considered a draft decision prepared by the contact group. While there was general support for the contact group's conclusions that the screening criteria had been fulfilled and a risk profile should be prepared for the chemical, concerns were raised regarding the data used to support the conclusions. The members agreed to reflect those concerns in the present report of the meeting.
- 42. Many members highlighted the need for additional data, including toxicity data, to properly evaluate the adverse effects associated with the chemical, although it was agreed that such data could be sought at the risk profile stage. One member specified that, while there was higher uncertainty associated with the evaluation of the adverse effects criterion in Annex D owing to the lack of chronic studies, the absence of robust repro-toxicity studies in laboratory animals and the small number of epidemiological studies available, the persistence and bioaccumulative characteristics of the chemical provided sufficient cause for concern. The proposal contained indications for potential for adverse effects on the environment, although there had been no discussion of effect levels.
- 43. A number of members suggested that the evidence required could be obtained using the read-across technique, although not all agreed. The Committee was also informed that the European Union had initiated a process requesting further toxicity data within a one-year time frame.
- 44. One member raised concerns about the data supporting the conclusions on other screening criteria. For bioaccumulation, he cautioned against relying solely on monitoring data as evidence, referring members to the preliminary guidance paper on bioaccumulation evaluation set out in annex VI to document UNEP/POPS/POPRC.3/20, which indicated that the analytical detection of chemicals in organisms was not in itself always an indicator of significant bioaccumulation that would lead to effects in biota. For persistence, he noted that data from ice cores had been used, yet preservation in ice did not of itself constitute proof of persistence. Likewise, the presence of the chemical in ice cores was not evidence of long-range transport. Noting the existing guidance on bioaccumulation evaluation, he proposed that similar guidance could be prepared for evaluation of persistence and long-range transport. In response, the representative of the Secretariat drew the Committee's attention to the guidance paper on bioaccumulation evaluation prepared by a Committee member who was an expert on bioaccumulation during the intersessional period before the third meeting of the Committee.
- 45. Subsequently, the representative of the Secretariat introduced a revised version of the draft decision, prepared by the Secretariat taking into account the discussion in plenary. The Committee then adopted decision POPRC-15/2, by which it decided that the screening criteria set out in Annex D to the Stockholm Convention had been fulfilled for Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8), as described in the evaluation contained in the annex to the decision and decided to establish an intersessional working group to review further the proposal to list the chemical in Annexes A, B and/or C to the Convention and to prepare a draft risk profile in accordance with Annex E to the Convention.
- 46. The decision is set out in annex I to the present report.

2. Methoxychlor

- 47. In considering the sub-item, the Committee had before it a note by the Secretariat on a proposal by the European Union to list methoxychlor in Annex A to the Stockholm Convention (UNEP/POPS/POPRC.15/4), together with a note by the Secretariat on its verification of whether the proposals to list chemicals in Annexes A, B and/or C to the Convention contained the information specified in Annex D to the Convention (UNEP/POPS/POPRC.15/INF/6/Rev.1).
- 48. Ms. Lucie Ribeiro introduced the proposal on behalf of the European Union.
- 49. In the ensuing discussion, one member supported moving the proposal forward to the next stage and preparing a draft risk profile. Another, however, expressed reservations regarding methoxychlor's persistence, because there was very little evidence of methoxychlor in the monitoring data, and also regarding its long-range environmental transport given that concentrations of methoxychlor found in remote areas were far lower than those of other known chlorinated pesticides. A third member, noting that only the para, para'-isomer of methoxychlor was mentioned in the proposal, suggested that it might be important to mention other isomers as well.
- 50. The representative of the Secretariat clarified that, in the case of chemicals newly proposed by Parties for listing, the Committee was tasked with examining proposals to determine whether the screening criteria in Annex D were fulfilled. The Committee was not expected to change the proposal document itself.

- 51. The Committee established a contact group, chaired by Ms. Thabile Ndlovu (Eswatini), to prepare a draft decision on methoxychlor, including the evaluation of the chemical against Annex D screening criteria, based on initial text to be prepared by the Secretariat, taking into account the discussion in plenary.
- 52. Subsequently, the chair of the contact group introduced a draft decision on methoxychlor, which had been prepared by the group.
- 53. The Committee then adopted decision POPRC-15/3, by which it decided that the screening criteria set out in Annex D to the Stockholm Convention had been fulfilled for methoxychlor, as described in the evaluation contained in the annex to the decision and decided to establish an intersessional working group to further review the proposal to list methoxychlor in Annex A to the Convention and to prepare a draft risk profile in accordance with Annex E to the Convention.
- 54. The decision is set out in annex I to the present report.

C. Review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins

- 55. In considering the sub-item, the Committee had before it a note by the Secretariat on a review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins (UNEP/POPS/POPRC.15/5).
- 56. Introducing the sub-item, the representative of the Secretariat recalled that, at its eighth meeting, the Conference of the Parties to the Stockholm Convention had decided to amend Annex A to the Convention to list decabromodiphenyl ether and short-chain chlorinated paraffins, with various specific exemptions. The amendments to list decabromodiphenyl ether and short-chain chlorinated paraffins had entered into force for most Parties on 18 December 2018. At the same meeting, the Conference of the Parties had adopted decisions SC-8/13 and SC-8/14, on review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins, respectively. In accordance with the processes for the review of information described in those decisions, Parties and observers had been invited to provide to the Secretariat the information set out in paragraph 2 of document UNEP/POPS/POPRC 15/5 by 2 December 2019. The Secretariat would compile that information and make it available to the Committee by January 2020.
- 57. The representative of the Secretariat informed the Committee that, as of 1 October 2019, three Parties, namely, Brazil, Iran (Islamic Republic of) and New Zealand, had registered specific exemptions for decabromodiphenyl ether, while no Party had registered specific exemptions for short-chain chlorinated paraffins. Two Parties, Japan and New Zealand, had submitted notifications of articles in use for both decabromodiphenyl ether and short-chain chlorinated paraffins pursuant to note (ii) of part I of Annex A.
- 58. In the ensuing discussion, one member expressed support for the proposed draft decision.
- 59. The Committee adopted decision POPRC-15/4, by which it decided to establish intersessional working groups on decabromodiphenyl ether and short-chain chlorinated paraffins, respectively, to undertake the activities specified in paragraph 5 of decisions SC-8/13 and SC-8/14, on review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins, respectively, and agreed to work in accordance with the workplan set out in the annex to the decision.
- The decision is set out in annex I to the present report.

VI. Report on activities to support effective participation in the work of the Committee

61. The representative of the Secretariat introduced a report on activities to support effective participation in the work of the Committee (UNEP/FAO/POPRC.15/INF/7), outlining the capacity-building and training activities carried out by the Secretariat since the previous meeting of the Committee, as well as planned activities. She drew attention to a joint regional workshop for the South-East Asian subregion for enhancing the effective participation of Parties to the Rotterdam and Stockholm conventions in the work of the Chemical Review Committee and the Persistent Organic Pollutants Review Committee, which had been held in Jakarta from 11 to 13 November 2018, thanks to financial support provided by the European Union and the Government of Norway. Newly appointed Committee members with terms of office beginning on 5 May 2020 were participating as observers in the current meeting thanks to financial support provided by the Government of Germany.

The Secretariat had also organized an orientation session for such members on 1 October 2019. In addition, the Secretariat had developed a number of awareness-raising materials on newly listed POPs and conducted online briefings about Committee meetings.

- As for future activities, the Secretariat planned to organize joint regional workshops in other regions during the biennium 2020–2021, subject to the availability of resources.
- 63. In the ensuing discussion, several members expressed their appreciation to the Secretariat for the information provided and the activities conducted. One member said that the workshop in Jakarta had enabled participants to familiarize themselves with the procedures of the Committee and thereby greatly enhanced their ability to participate in its work. Another member conveyed his expectation that the Secretariat would do its utmost to obtain the funds necessary to hold a similar workshop in the African region prior to the tenth meeting of the Conference of the Parties to the Stockholm Convention.
- 64. The Committee took note of the information presented.

VII. Workplan for the intersessional period between the fifteenth and sixteenth meetings of the Committee

- 65. In considering the item, the Committee had before it a note by the Secretariat on a draft workplan for the intersessional period between the fifteenth and sixteenth meetings of the Committee (UNEP/POPS/POPRC.15/6). The representative of the Secretariat introduced the item, outlining the information in the note, following which the Committee adopted the workplan without amendment.
- 66. In accordance with paragraph 29 of the annex to decision SC-1/7, the Committee established a number of intersessional working groups to carry forward the work necessary to implement its decisions.
- 67. The composition of the intersessional working groups is set out in annex II to the present report, and the workplan is set out in annex III.

VIII. Venue and date of the sixteenth meeting of the Committee

68. The Committee agreed that its sixteenth meeting would be held at the headquarters of the Food and Agriculture Organization of the United Nations in Rome from 14 to 18 September 2020, back to back with the sixteenth meeting of the Chemical Review Committee of the Rotterdam Convention. It was further understood that the duration of the meeting might be adjusted during the intersessional period, in consultation with the Bureau, taking into account the number of chemicals to be considered by the Committee at the meeting.

IX. Other matters

69. No other matters were raised.

X. Adoption of the report

70. The Committee adopted the present report on the basis of the draft report that had been circulated during the meeting, as orally amended, and on the understanding that the finalization of the report would be entrusted to the Rapporteur, working in consultation with the Secretariat.

XI. Closure of the meeting

71. Following the customary exchange of courtesies, during which several members of the Committee, representatives of the Secretariat and observers paid tribute to Ms. Moreira for her years of dedication and service as Chair of the Committee, the meeting was declared closed at 11.05 a.m. on Friday, 4 October 2019.

Annex I

Decisions adopted by the Persistent Organic Pollutants Review Committee at its fifteenth meeting

POPRC-15/1: Perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds

POPRC-15/2: Dechlorane Plus and its syn-isomer and anti-isomer

POPRC-15/3: Methoxychlor

POPRC-15/4: Review of information related to specific exemptions for decabromodiphenyl ether

and short-chain chlorinated paraffins



POPRC-15/1: Perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds

The Persistent Organic Pollutants Review Committee,

Having concluded in its decision POPRC-13/3 that the screening criteria set out in Annex D to the Stockholm Convention have been fulfilled for perfluorohexane sulfonic acid (CAS No. 355-46-4, PFHxS), its salts and PFHxS-related compounds,

Having evaluated the risk profile for perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds at its fourteenth meeting¹ in accordance with paragraph 6 of Article 8 of the Convention,

Having decided in its decision POPRC-14/1 that perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds are likely, as a result of their long-range environmental transport, to lead to significant adverse human health and environmental effects such that global action is warranted.

Having completed the risk management evaluation for perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds in accordance with paragraph 7 (a) of Article 8 of the Stockholm Convention,

Recognizing that a transition to the use of short-chain per- and polyfluoroalkyl substances (PFASs) for dispersive applications, such as fire-fighting feams, is not a suitable option from an environmental and human health point of view.

- 1. Adopts the risk management evaluation for perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds;²
- 2. Decides, in accordance with paragraph 9 of Article 8 of the Convention, to recommend to the Conference of the Parties that it consider listing perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds in Annex A to the Convention without specific exemptions;
- 3. Notes that in order to support Parties and observers and to facilitate the identification of substances, an initial indicative list of perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds has been prepared as set out in document UNEP/POPS/POPRC.15/INF/9;
- 4. Recommends to the Conference of the Parties, should it decide to list perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds, that it establish a process for the identification of substances covered by such a listing, taking into account the process established for perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds as set out in paragraphs 7 to 9 of decision SC-9/13.

POPRC-15/2: Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8)

The Persistent Organic Pollutants Review Committee,

Having examined the proposal by Norway to list Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8) in Annexes A, B and/or C to the Convention and having applied the screening criteria specified in Annex D to the Convention,

- 1. Decides, in accordance with paragraph 4 (a) of Article 8 of the Convention, that it is satisfied that the screening criteria have been fulfilled for Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8) as described in the evaluation contained in the annex to the present decision;
- 2. Also decides, in accordance with paragraph 6 of Article 8 of the Convention and paragraph 29 of decision SC-1/7, to establish an intersessional working group to review the proposal further and to prepare a draft risk profile in accordance with Annex E to the Convention;

¹ UNEP/POPS/POPRC.14/6/Add.1.

² UNEP/POPS/POPRC.15/7/Add.1.

3. *Invites*, in accordance with paragraph 4 (a) of Article 8 of the Convention, Parties and observers to submit to the Secretariat the information specified in Annex E, before 2 December 2019, for Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8).

Annex to decision POPRC-15/2

Evaluation of Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8) against the criteria of Annex D

A. Background

1. The primary source of information for the preparation of the present evaluation was the proposal submitted by Norway, contained in document UNEP/POPS/POPRC.15/3.

B. Evaluation

2. The proposal was evaluated in the light of the requirements of Annex D regarding the identification of the chemical (paragraph 1 (a)) and the screening criteria (paragraphs 1 (b)–(e)):

(a) Chemical identity:

- (i) Adequate information was provided in the proposal, which relates to Dechlorane Plus (CAS No. 13560-89-9 (technical mixture) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8);
- (ii) The chemical structures were provided;

The chemical identity of Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8) is adequately established;

(b) Persistence:

(i) and (ii)

Dechlorane Plus was recently identified as a very persistent (vP) substance in the European Union based on: modelling of degradation potential and microbial metabolic pathways which suggested that biodegradation was likely to be very slow; a low probability that it would degrade any faster than structural analogues (aldrin, chlordane, dieldrin, heptachlor, endosulfan); very low water solubility (suggesting limited bioavailability to microorganisms once bound to solid matrices); lack of evidence of biotransformation in fish (supporting the premise that the molecule is metabolically recalcitrant) and field evidence suggesting persistence in sediment as well as widespread presence in remote regions (ECHA, 2017a);

Only a slight decrease (4.2–8.2 per cent) in total Dechlorane Plus concentration was observed after 260 days indicating limited degradation in one ageing soil (Cheng et al., 2019);

There is sufficient evidence that Dechlorane Plus meets the criterion on persistence;

(c) Bioaccumulation:

(i) A depuration half-life for Dechlorane Plus was reported to be 30–40 days for the anti-isomer and 50–70 days for the syn-isomer, which is highly indicative of a very bioaccumulative substance (Tomy et al., 2008). Additionally, the log octanol-water partition coefficient (log Kow) for Dechlorane Plus is reported to be 9.3 (OxyChem 2004);

(ii) and (iii)

Many studies have revealed the occurrence of Dechlorane Plus in wildlife as well as human blood and hair (reviewed in Wang et al., 2016). Field monitoring data suggest that Dechlorane Plus is bioavailable and can achieve a relatively high body burden in some cases (ECHA, 2017b);

Based on the known predator-prey relationship between frog and insects, biomagnification factors (BMFs) above 1 (1.8–2.7) for Dechlorane Plus have been reported in a study (Wu et al., 2018). Dechlorane Plus biomagnifies in various food webs, both from freshwater and marine waters, as BMFs (Tomy et al., 2007; Wu et al., 2018; Sun et al., 2015, Sun et al., 2017) and trophic magnification factors (TMF) (Sun et al., 2015; Kurt-Karakus et al., 2019; Na et al., 2017) are reported to be greater than 1, including in one study in Antarctica (Na et al., 2017);

There is sufficient evidence that Dechlorane Plus meets the criterion on bioaccumulation;

(d) Potential for long-range environmental transport:

(i) and (ii)

Dechlorane Plus is detected in many different environmental matrices and biota in remote regions, far from manufacturing facilities; in Arctic air, snew, soil, sediment, water and biota (reviewed in AMAP, 2017); in Antarctic air, seawater, soil, lichens, mosses, and in a marine food web (red algae, limpet, starfish, gammarid, krill, cod, penguin, seal, and stercorarius) (Na et al., 2017; Möller et al., 2010, Möller et al., 2012; Gao et al., 2018; Kim et al., 2018) in air, soil and lichen in remote mountain areas in Tibet (Yang et al., 2016a; Liu et al., 2018);

Available air-monitoring data provides evidence for long-range environmental transport of Dechlorane Plus via particles in air and that long-range environmental transport is a source to Dechlorane Plus found in the environment and biota in the Arctic, Antarctic and remote mountain areas in Asia (e.g., Sverko et al., 2011; Wang et al., 2016; AMAP, 2017; Möller et al., 2010; Möller et al., 2011; Möller et al., 2012; Yang et al., 2016; Liu et al., 2018).

(iii) Modelling data indicate that Dechlorane Plus has transport and persistence properties similar to many of the listed persistent organic pollutants (Sverko et al., 2011);

There is sufficient evidence that Dechlorane Plus meets the criterion on potential for long-range environmental transport;

(e) Adverse effects:

- (i) No information;
- (ii) Reported effects on the environment include oxidative stress and oxidative damages, potential neurotoxicity and potential for endocrine disruption;

Oxidative stress has been observed after exposure to Dechlorane Plus in fish (Chen et al., 2017; Hang et al., 2013; Kang et al., 2016), green macro algae (Gong et al., 2018), marine bivalves (Baron et al., 2016; Gagne et al., 2017), earthworms (Zhang et al., 2014; Yang et al., 2016), birds (Li et al., 2013) and mice (Wu et al., 2012);

Changes in acetylcholinesterase (AChE) and cellulase activity have been observed in earthworms (Zhang et al., 2014; Yang et al., 2016b). Short-time exposure studies with embryo/larval zebrafish suggest that Dechlorane Plus can induce neurobehavioral changes (Hang et al., 2013; Noyes et al., 2015; Chen et al., 2017). Dechlorane Plus significantly inhibited primary motor neuron axonal growth and induced cell apoptosis and lesions in muscle fibres of the tail region of zebrafish larvae at concentrations above the water solubility (Chen et al., 2017);

In a short-time oral exposure study by gavage of adult zebrafish, transcriptional responses of both thyroid and sex hormone-related genes in the brain were observed, suggesting possible thyroid and sex hormone-disrupting potentials of Dechlorane Plus with some uncertainties on gavage dose levels, although internal dose levels were recorded at the end of the study (Kang et al., 2016).

Dechlorane Plus meets the criterion on adverse effects as there are ecotoxicity data that indicate the potential for damage to the environment.

C. Conclusion

3. The Committee concluded that Dechlorane Plus and its syn-isomer and anti-isomer met the screening criteria specified in Annex D.

References

- 1. AMAP (2017). AMAP Assessment 2016: Chemicals of Emerging Arctic Concern. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. xvi+353pp.
- 2. Barón E, Dissanayake A, Vilà-Cano J, Crowther C, Readman JW, Jha AN, Eljarrat E, Barceló D (2016). Evaluation of the Genotoxic and Physiological Effects of Decabromodiphenyl Ether (BDE-209) and Dechlorane Plus (DP) Flame Retardants in Marine Mussels (Mytilus galloprovincialis). Environ Sci Technol. 50(5):2700-8.
- 3. Chen X, Dong Q, Chen Y, Zhang Z, Huang C, Zhu Y, Zhang Y (2017). Effects of Dechlorane Plus exposure on axonal growth, musculature and motor behavior in embryo-larval zebrafish. Environ Pollut. 224:7-15. doi: 10.1016/j.envpol.2017.03.011.
- 4. Cheng Y, Ding J, Xie X, Ji X, Zhang Y (2019). Validation and Application of a 3-Step Sequential Extraction Method to Investigate the Fraction Transformation of Organic Pollutants in Aging Soils: A Case Study of Dechlorane Plus. Environ Sci Technol. 5;53(3):1325-1333.
- 5. ECHA (2017a). Agreement of the Member State Committee in accordance with Article 59(8): 1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo- [12.2.116,9.02,13.05,10] octadeca-7, 15-diene ("Dechlorane Plus"TM) [covering any of its individual anti- and syn-isomers or any combination thereof] is identified as a substance of very high concern because it meets the criteria of Article 57 (e) of Regulation (EC) 1907/2006 (REACH) as a substance which is very persistent and very bioaccumulative (vPvB), in accordance with the criteria and provisions set out in Annex XIII of REACH Regulation. Available at: [HYPERLINK "https://echa.europa.eu/documents/10162/15b88a69-2162-9385-4089-7c247cba4da6"].
- 6. ECHA (2017b). Dechlorane Plus, Proposal for identification of a substance of very high concern on the basis of the criteria set out in REACH Article 57. Annex XV report. Available at: [HYPERLINK "https://echa.europa.eu/documents/10162/6ba01c40-009a-8388-1556-d8caa50d2b4f"].
- 7. Gagné PL, Fortier M, Fraser M, Parent L, Vaillancourt C, Verreault J (2017). Dechlorane Plus induces oxidative stress and decreases cyclooxygenase activity in the blue mussel. Aquat Toxicol. 188:26-32.
- 8. Gao H, Na G, Yao Y, Li R, Gao Y, Zhang Z, Yao Z (2018). Distribution Characteristics and Source of Dechloranes in Soil and Lichen of the Fildes Peninsula (Antarctica). Int J Environ Res Public Health. 15(10).
- 9. Gong N, Shao K, Han X, Zhang Y, Sun Y (2018). Enrichment and physiological responses of dechlorane plus on juvenile marine macroalgae (Ulva pertusa). Chemosphere.205:594-600.
- 10. Hang XM, Jiang Y, Liu Y, Jia HL and Sun YQ (2013). An integrated study on the toxicity of Dechlorane Plus in zebrafish. Organohalogen Compounds, 75, 1085-1089. [HYPERLINK "http://www.dioxin20xx.org/pdfs/2013/5154.pdf"].
- Kang H, Moon HB, Choi K (2016). Toxicological responses following short-term exposure through gavage feeding or water-borne exposure to Dechlorane Plus in zebrafish (Danio rerio). Chemosphere. 146:226-32. doi: 10.1016/j.chemosphere.2015.12.024.
- 12. Kim JT, Choi YJ, Barghi M, Yoon YJ, Kim JH, Kim JH, Chang YS (2018). Occurrence and distribution of old and new halogenated flame retardants in mosses and lichens from the South Shetland Islands, Antarctica. Environ Pollut. 235:302-311.
- 13. Kurt-Karakus PB, Muir DC, de Jourdan B, Teixeira C, Martindale JE, Embers H, Wang X, Keir M, Backus S (2019). Bioaccumulation of selected halogenated organic flame retardants in Lake Ontario. Environ Toxicol Chem. [Epub ahead of print].
- 14. Li Y, Yu L, Zhu Z, Dai J, Mai B, Wu J, Wang J (2013). Accumulation and effects of 90-day oral exposure to Dechlorane Plus in quail (Coturnix coturnix). Environ Toxicol Chem. 32(7):1649-54.

- 15. Liu X, Bing H, Chen Y, Li J, Wu Y, Zhang G (2018). Brominated flame retardants and dechlorane plus on a remote high mountain of the eastern Tibetan Plateau:implications for regional sources and environmental behaviors. Environ Geochem Health. 40(5):1887-1897. doi: 10.1007/s10653-017-9938-1.
- 16. Möller A, Xie Z, Sturm R, Ebinghaus R (2010). Large-scale distribution of dechlorane plus in air and seawater from the Arctic to Antarctica. Environ Sci Technol. 44(23):8977-82.
- 17. Möller A, Xie Z, Cai M, Zhong G, Huang P, Cai M, Sturm R, He J, Ebinghaus R (2011). Polybrominated diphenyl ethers vs alternate brominated flame retardants and dechloranes from East Asia to the Arctic. Environmental Science and Technology, 45:6793-6799.
- 18. Möller A, Xie Z, Cai M, Sturm R, Ebinghaus R (2012). Brominated flame retardants and dechlorane plus in the marine atmosphere from Southeast Asia toward Antarctica. Environ Sci Technol. 46(6):3141-8.
- 19. Na G, Yao Y, Gao H, Li R, Ge L, Titaley IA, Santiago-Delgado L, Massey Simonich SL (2017). Trophic magnification of Dechlorane Plus in the marine food webs of Fildes Peninsula in Antarctica. Mar Pollut Bull. 117(1-2):456-461.
- 20. Noyes PD, Haggard DE, Gonnerman GD and Tanguay RL (2015). Advanced morphological behavioral test platform reveals neurodevelopmental defects in embryonic zebrafish exposed to comprehensive suite of halogenated and organophosphate flame retardants. Toxicol. Sci., 145, 177-195.
- 21. OxyChem® Dechlorane Plus® (2004). Available at: ([HYPERLINK "http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1 578.5473&rep=rep1&type=pdf"]). Last accessed 12 September 2019.
- 22. Sun YX, Zhang ZW, Xu XR, Hu YX, Luo XJ, Cai MG, Mai BX (2015). Bioaccumulation and biomagnification of halogenated organic pollutants in mangrove biota from the Pearl River Estuary, South China. Mar Pollut Bull. 15;99(1-2):150-6.
- 23. Sun YX, Hu YX, Zhang ZW, Xu XR, Li HX, Zuo LZ, Zhong Y, Sun H, Mai BX (2017). Halogenated organic pollutants in marine biota from the Xuande Atoll, South China Sea: Levels, biomagnification and dietary exposure. Mar Pollut Bull. 118(1-2):413-419.
- 24. Sverko E, Tomy GT, Reiner EJ, Li YF, McCarry BE, Arnot JA, Law RJ and Hites RA (2011). Dechlorane Plus and related compounds in the environment: a review. Environ. Sci. Technol. 45 (12), 5088–5098.
- 25. Tomy GT, Pleskach K, Ismail N, Whittle DM, Helm PA, Sverko E, Zaruk D, Marvin CH (2007) Isomers of dechlorane plus in Lake Winnipeg and Lake Ontario food webs. Environ Sci Technol. 1;41(7):2249-54.
- 26. Tomy GT, Thomas CR, Zidane TM, Murison KE, Pleskach K, Hare J, Arsenault G, Marvin CH, Sverke E (2008). Examination of isomer specific bioaccumulation parameters and potential in vivo hepatic metabolites of syn- and anti-Dechlorane Plus isomers in juvenile rainbow trout (Oncorhynchus mykiss). Environ Sci Technol. 42(15):5562-7.
- Wang P, Zhang Q, Zhang H, Wang T, Sun H, Zheng S, Li Y, Liang Y, Jiang G. (2016). Sources and environmental behaviors of Dechlorane Plus and related compounds A review. Environ Int. 88:206-220.
- 28. Wu B, Liu S, Guo X, Zhang Y, Zhang X, Li M, Cheng S (2012). Responses of mouse liver to dechlorane plus exposure by integrative transcriptomic and metabonomic studies. Environ Sci Technol. 46(19):10758-64.
- 29. Wu JP, Chen XY, Si-Kang W, Sun Y, Feng WL, Tao L, Luo XJ, Mai BX (2018). Dechlorane Plus flame retardant in a contaminated frog species: Biomagnification and isomer-specific transfer from females to their eggs. Chemosphere. 211:218-225.
- 30. Yang R, Zhang S, Li X, Luo D, Jing C (2016a). Dechloranes in lichens from the southeast Tibetan Plateau: Evidence of long-range atmospheric transport. Chemosphere. 144:446-51. doi: 10.1016/j.
- 31. Yang Y, Ji F, Cui Y, Li M (2016b). Ecotoxicological effects of earthworm following long-term Dechlorane Plus exposure. Chemosphere. 144:2476-81.

32. Zhang L, Ji F, Li M, Cui Y, Wu B (2014). Short-term effects of Dechlorane Plus on the earthworm Eisenia fetida determined by a systems biology approach. J Hazard Mater. 273:239-46. doi: 10.1016/j.jhazmat.2014.03.018.

POPRC-15/3: Methoxychlor

The Persistent Organic Pollutants Review Committee,

Having examined the proposal by the European Union to list methoxychlor in Annex A to the Convention and having applied the screening criteria specified in Annex D to the Convention,

- 1. Decides, in accordance with paragraph 4 (a) of Article 8 of the Convention, that it is satisfied that the screening criteria have been fulfilled for methoxychlor, as set out in the evaluation contained in the annex to the present decision;
- 2. Also decides, in accordance with paragraph 6 of Article 8 of the Convention and paragraph 29 of decision SC-1/7, to establish an intersessional working group to review the proposal further and to prepare a draft risk profile in accordance with Annex E to the Convention;
- 3. *Invites*, in accordance with paragraph 4 (a) of Article 8 of the Convention, Parties and observers to submit to the Secretariat the information specified in Annex E, by 2 December 2019, for methoxychlor.

Annex to decision POPRC-15/3

Evaluation of methoxychlor against the criteria of Annex D

A. Background

1. The primary source of information for the preparation of the present evaluation was the proposal submitted by the European Union, contained in document UNEP/POPS/POPRC.15/4.

B. Evaluation

2. The proposal was evaluated in the light of the requirements of Annex D regarding the identification of the chemical (paragraph 1 (a)) and the screening criteria (paragraphs 1 (b)–(e)):

(a) Chemical identity:

- (i) Adequate information was provided in the proposal, which relates to methoxychlor;
- (ii) The chemical structure was provided;

The chemical identity of methoxychlor is adequately established;

(b) Persistence:

(i) and (ii)

Methoxychlor shows persistence in water with a degradation half-life of 208 days (half-life > 2 months) (Walker et al., 1988) and in sediments with a degradation half-life of 206±186.8 days for lake (half-life > 6 months) under aerobic conditions (with a shorter half-life value (~1 month) under anaerobic conditions) (Muir and Yarechewski, 1984);

There is sufficient evidence that methoxychlor meets the criterion on persistence;

(c) Bioaccumulation:

(i) Methoxychlor shows bioconcentration in aquatic organisms with BCF values > 5000: in fish (BCF value as high as 8,300 in fathead minnows (*Pimephales promelas*) (Veith et al., 1979) and BCF values ranging from 2,358 to 5,207 in rainbow trout (OECD, 2012), in mussels (BCF value of 12,000 (Renberg et al., 1985)) and in snails (an average BCF value of 6,945 (in the range of 5,000 to 8,570 (Anderson and DeFoe, 1980)). Experimental and modelled log K_{ow} values are > 5 (log K_{ow} of 5.08 ([ADDIN CSL_CITATION { "citationItems" : [{ "id" : "ITEM-1", "itemData" : { "ISBN" : "0841229910", "abstract" : "[v. 1]. Fundamentals and applications in chemistry and

biology / Corwin Hansch, Albert Leo -- [v. 2]. Hydrophobic, electronic, and steric constants / Corwin Hansch, Albert Leo, David Hoekman.", "author": [{ "dropping-particle": "", "family": "Hansch", "given": "Corwin.", "non-dropping-particle": "", "parse-names": false, "suffix": "" }, { "dropping-particle": "", "family": "Leo", "given": "Albert.", "non-dropping-particle": "", "parse-names": false, "suffix": "" }, { "dropping-particle": "", "family": "Hoekman", "given": "D. H.", "non-dropping-particle": "", "parse-names": false, "suffix": "" }], "id": "ITEM-1", "issued": { "date-parts": [["1995"]] }, "publisher": "American Chemical Society", "title": "Exploring QSAR.", "type": "book" }, "uris": ["http://www.mendeley.com/documents/?uuid=5fc0d856-8a86-378e-b269-ca9cce522f63"] }], "mendeley": { "formattedCitation": "(Hansch, Leo and Hoekman, 1995)", "manualFormatting": "Hansch, Leo and Hoekman (1995)", "plainTextFormattedCitation": "(Hansch, Leo and Hoekman, 1995)", "previouslyFormattedCitation": "(Hansch, Leo and Hoekman, 1995)", "previouslyFormattedCitation": "(Hansch, Leo and Hoekman, 1995)", "previouslyFormattedCitation": "(Hansch, Leo and Hoekman, 1995)", "properties": { "noteIndex": 6 }, "schema": "https://github.com/citation-style-language/schema/raw/master/csl-citation.json" }] and 5.67 (US EPA (2011) EPI Suite), respectively);

(ii) and (iii)

No information;

There is sufficient evidence that methoxychlor meets the criterion on bioaccumulation;

(d) Potential for long-range environmental transport:

- (i) Methoxychlor has been detected in various media in the Arctic, including in air (concentrations in the range of 0.26 to 0.41 pg/m between 1992 and 1993) (Halsall et al., 1998), ice core (a peak concentration of 4.7 ng/L associated with the early 1980s in Svalbard) (Hermanson et al., 2005) and in terrestrial, avian and marine biota samples (Vorkamp et al., 2004; Savinov et al., 2011). It was also detected in elephant seals from Antarctica (Filho et al., 2009). The presence of methoxychlor at sites remote from known point sources like the Arctic and Antarctica indicates a potential for long-range transport;
- (ii) Monitoring data available from the Arctic and Antarctic demonstrate long-range environmental transport with transfer to the receiving environment, including to biota (Halsall et al., 1998; Vorkamp et al., 2004; Savinov et al., 2011; Filho et al., 2009). In particular, methoxychlor has been found in ice core in sections dating from the early 1950s and concentrations were found to increase over subsequent years with a peak concentration of 4.7 ng/L in the early 1980s (Hermanson et al., 2005). The measured levels in ice cores reflect trends in volumes used at lower latitudes, providing further evidence for long-range transport as a source to methoxychlor in this remote region;
- (iii) Not applicable;

There is sufficient evidence that methoxychlor meets the criterion on potential for long-range environmental transport;

(e) Adverse effects:

- (i) Methoxychlor shows reprotoxic effects in both male and female rats and mice (Zama and Uzumcu, 2009; Armenti et al., 2008; Paulose et al., 2012; Aly and Azhar, 2013). This might be based on estrogenic mimicking effects of methoxychor and its metabolites affecting fertility in both male and female animals. Studies on female rats have shown evidence of damage to follicle development within ovaries with potential fertility and development issues;
- (ii) Studies indicate that methoxychlor is toxic to fish and aquatic invertebrates with a 14-day NOEC for *Oncorhynchus mykiss* (rainbow trout) of 2.2×10⁻³ mg/L (Thorpe et al., 2001), a 96-h LC₅₀ for *Oronectes nais* (Water Nymph Crayfish) of 5×10⁻⁴ mg/L (US EPA, 2009) and a chronic 28-day LC₅₀ for *Asellus communis* (brine shrimp) of 4.2×10⁻⁴ mg/L (Anderson and Defoe, 1980);

There is sufficient evidence that methoxychlor meets the criterion on adverse effects.

C. Conclusion

3. The Committee concluded that methoxychlor meets the screening criteria specified in Annex D.

References

1. Aly, H.A.A. and Azhar, A. (2013). Methoxychlor induced biochemical alterations and disruption of spermatogenesis in adult rats. Reproductive Toxicology 40 (2013) 8-15. http://dx.doi.org/10.1016/j.reprotox.2013.05.002.

[ADDIN Mendeley Bibliography CSL_BIBLIOGRAPHY] **POPRC-15/4: Review** of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins

The Persistent Organic Pollutants Review Committee,

- 1. Decides to establish intersessional working groups on decabromodiphenyl ether and on short-chain chlorinated paraffins to undertake the activities specified in paragraph 5 of decisions SC-8/13 and SC-8/14, on review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins, respectively;
- 2. Agrees to work in accordance with the workplan set out in the annex to the present decision.

Annex to decision POPRC-15/4

Workplan for the review of information related to specific exemptions for decabromodiphenyl ether and short-chain chlorinated paraffins

Scheduled date	Interval between activities (weeks)	Activity (for each chemical under review)
4 October 2019	- 	The Committee establishes an intersessional working group.
11 October 2019	1	The Secretariat sends a reminder to Parties and observers to provide the information requested in decisions SC-8/13 and SC-8/14.
2 December 2019	7	Parties and observers submit to the Secretariat the information requested in decisions SC-8/13 and SC-8/14.
13 January 2020	6	The working group chair and the drafter prepare a first draft of the report on the review of information related to specific exemptions for the relevant chemical.
27 January 2020	2	The members of the working group submit comments on the first draft to the chair and the drafter.
10 February 2020	2	The working group chair and the drafter finish their review of the comments from the working group and complete the second draft and a compilation of responses to those comments.
17 February 2020	1	The Secretariat distributes the second draft to Parties and observers for comments and requests further information as necessary.
30 March 2020	6	Parties and observers submit their comments and information to the Secretariat.
20 April 2020	3	The working group chair and the drafter review the comments from Parties and observers and complete the third draft and a compilation of responses to those comments.
27 April 2020	1	The Secretariat sends the third draft to the working group.
11 May 2020	2	The members of the working group submit their final comments on the third draft to the chair and the drafter.

Scheduled date	Interval between activities (weeks)	Activity (for each chemical under review)
25 May 2020	2	The working group chair and the drafter review the final comments and complete the fourth and final draft and a compilation of responses to those comments.
3 August 2020	10	The Secretariat distributes the final draft.
14-18 September 2020	6	Sixteenth meeting of the Committee.



Annex II

Composition of intersessional working groups (2019–2020)

Working group on Dechlorane Plus

Committee members

- Ms. Tamara Kukharchyk (Belarus)
- Ms. Estefania Moreira (Brazil)
- Ms. Rikke Holmberg (Denmark)
- Mr. Sam Adu-Kumi (Ghana)
- Ms. Helen Jacobs (Jamaica)
- Ms. Caroline Wamai (Kenya)
- Ms. Ingrid Hauzenberger (Luxembourg)
- Mr. Rameshwar Adhikari (Nepal)
- Mr. Martien Janssen (Netherlands)
- Mr. Peter Dawson (New Zealand)
- Ms. Vilma Morales Quillama (Peru)
- Ms. Victorine Augustine Pinas (Suriname) (Chair)
- Mr. Andreas Buser (Switzerland) (Drafter until 4 May 2020)
- Ms. Svitlana Sukhorebra (Ukraine)

Observers

- Mr. Agustin Harte (Argentina)
- Ms. Cynthia Bainbridge (Canada)
- Ms. Mélanie Whiteside (Canada)
- Ms. Katarina Říháčková (Czechia)
- Mr. Mario Rodas (Ecuador)
- Ms. Elham Refaat Abdelaziz (Egypt)
- Mr. Mehari Wondmagegn Taye (Ethiopia)
- Ms. Valentina Bertato (European Union)
- Mr. Timo Seppälä (Finland)
- Ms. Sandrine Andres (France)
- Ms. Caren Rauert (Germany)
- Mr. Kazuhide Kimbara (Japan)
- Mr. Akihiko Ikegawa (Japan)
- Mr. Kotaro Akiyama (Japan)
- Mr. Nobutada Kimura (Japan)
- Mr. Noriyasu Nagai (Japan)
- Ms. Hiroko Ichihara (Japan)
- Ms. Aiko Fujitsuka (Japan)
- Ms. Trine Celius (Norway)
- Ms. Christel Moræus Olsen (Norway)

- Ms. Christina Charlotte Tolfsen (Norway) (Drafter from 5 May 2020)
- Mr. Hyo-Bang Moon (Republic of Korea)
- Ms. Young Hee Kim (Republic of Korea)
- Mr. Pavel Shirokov (Russian Federation)
- Mr. Ivan Djurickovic (Serbia)
- Ms. Maria Delvin (Sweden)
- Mr. Ian Doyle (United Kingdom of Great Britain and Northern Ireland)
- Ms. Elizabeth Lawton (United Kingdom of Great Britain and Northern Ireland)
- Ms. Monique Perron (United States of America)
- Ms. Elizabeth Nichols (United States of America)
- Ms. Pamela Miller (Alaska Community Action on Toxics)
- Ms. Sharyle Patton (Commonweal)
- Mr. Mark Trewhitt (CropLife International)
- Mr. Jens Warsen (European Automobile Manufacturers Association (ACEA))
- Mr. Timo Unger (European Automobile Manufacturers Association (ACEA))
- Mr. Kevin Cockshott (FluoroCouncil)
- Ms. Sara Brosché (International Pollutants Elimination Network (IPEN))
- Ms. Eva Kruemmel (Inuit Circumpolar Council)
- Ms. Colleen Hartland (National Toxics Network (NTN) Inc.)
- Ms. Emily Marquez (Pesticide Action Network (PAN) North America)

Working group on methoxychlor

Committee members

- Ms. Lucie Ribeiro (Austria) (Drafter)
- Ms. Tamara Kukharchyk (Belarus)
- Ms. Estefania Moreira (Brazil)
- Mr. Luis Guillermo Romero Esquivel (Costa Rica)
- Ms. Rikke Holmberg (Denmark)
- Ms. Thabile Ndlovu (Eswatini)
- Mr. Sam Adu-Kumi (Ghana)
- Ms. Caroline Wamai (Kenya)
- Ms Mantoa Sekota (Lesotho) (Chair)
- Ms. Ingrid Hauzenberger (Luxembourg)
- Mr. Rameshwar Adhikari (Nepal)
- Mr. Martien Janssen (Netherlands)
- Mr. Peter Dawson (New Zealand)
- Mr. Andreas Buser (Switzerland)
- Ms. Svitlana Sukhorebra (Ukraine)

Observers

- Mr. Agustin Harte (Argentina)
- Ms. Cynthia Bainbridge (Canada)
- Ms. Mélanie Whiteside (Canada)
- Ms. Katarína Řiháčková (Czechia)
- Mr. Jean-Paul Otamonga (Democratic Republic of the Congo)
- Ms. Elham Refaat Abdelaziz (Egypt)
- Mr. Mehari Wondmagegn Taye (Ethiopia)
- Ms. Valentina Bertato (European Union)
- Mr. Timo Seppälä (Finland)
- Ms. Sandrine Andres (France)
- Ms. Caren Rauert (Germany)
- Mr. Kazuhide Kimbara (Japan)
- Mr. Akihiko Ikegawa (Japan)
- Mr. Kotaro Akiyama (Japan)
- Mr. Nobutada Kimura (Japan)
- Mr. Noriyasu Nagai (Japan)
- Ms. Hiroko Ichihara (Japan)
- Ms. Aiko Fujitsuka (Japan)
- Mr. Gotfried Uiseb (Namibia)
- Ms. Trine Celius (Norway)
- Ms. Christel Moræus Olsen (Norway)
- Ms. Christina Charlotte Tolfsen (Norway)
- Ms. Young Hee Kim (Republic of Korea)
- Mr. Pavel Shirokov (Russian Federation)
- Mr. Ivan Djurickovic (Serbia)
- Ms. Maria Delvin (Sweden)
- Mr. Ian Doyle (United Kingdom of Great Britain and Northern Ireland)
- Ms. Elizabeth Lawton (United Kingdom of Great Britain and Northern Ireland)
- Ms. Monique Perron (United States of America)
- Ms. Elizabeth Nichols (United States of America)
- Ms. Pamela Miller (Alaska Community Action on Toxics)
- Mr. Mark Trewhitt (CropLife International)
- Mr. Kevin Cockshott (FluoroCouncil)
- Ms. Sara Brosché (International Pollutants Elimination Network (IPEN))
- Ms. Eva Kruemmel (Inuit Circumpolar Council)
- Ms. Colleen Hartland (National Toxics Network (NTN) Inc.)
- Ms. Meriel Watts (Pesticide Action Network Asia and the Pacific)
- Ms. Emily Marquez (Pesticide Action Network North America)

Working group on decabromodiphenyl ether

Committee members

- Ms. Tamara Kukharchyk (Belarus) (Chair until 4 May 2020)
- Ms. Estefania Moreira (Brazil)
- Mr. Luis Guillermo Romero Esquivel (Costa Rica)
- Ms. Rikke Holmberg (Denmark)
- Ms. Thabile Ndlovu (Eswatini)
- Mr. Sam Adu-Kumi (Ghana)
- Ms. Caroline Wamai (Kenya)
- Ms. Ingrid Hauzenberger (Luxembourg)
- Mr. Martien Janssen (Netherlands)
- Mr. Peter Dawson (New Zealand)
- Ms. Victorine Augustine Pinas (Suriname)
- Mr. Andreas Buser (Switzerland)
- Ms. Svitlana Sukhorebra (Ukraine)

Observers

- Mr. Agustin Harte (Argentina)
- Ms. Cynthia Bainbridge (Canada)
- Mr. Mario Vujić (Croatia)
- Ms. Katarína Řiháčková (Czechia)
- Ms. Elham Refaat Abdelaziz (Egypt)
- Ms. Valentina Bertato (European Union)
- Mr. Timo Seppälä (Finland)
- Ms. Sandrine Andres (France)
- Ms. Caren Rauert (Germany)
- Mr. Kazuhide Kimbara (Japan)
- Mr. Akihiko Ikegawa (Japan)
- Mr. Kotaro Akiyama (Japan)
- Mr. Nobutada Kimura (Japan)
- Mr. Noriyasu Nagai (Japan)
- Ms. Hiroko Ichihara (Japan)
- Ms. Aiko Fujitsuka (Japan)
- Mr. Gotfried Uiseb (Namibia)
- Ms. Trine Celius (Norway)
- Ms. Christel Moræus Olsen (Norway)
- Ms. Christina Charlotte Tolfsen (Norway)
- Ms. Magdalena Frydrych (Poland) (Chair from 5 May 2020)
- Mr. Hyo-Bang Moon (Republic of Korea)
- Ms. Young Hee Kim (Republic of Korea)
- Ms. Maria Delvin (Sweden)

- Mr. Ian Doyle (United Kingdom of Great Britain and Northern Ireland)
- Ms. Elizabeth Lawton (United Kingdom of Great Britain and Northern Ireland)
- Ms. Monique Perron (United States of America)
- Ms. Elizabeth Nichols (United States of America)
- Ms. Pamela Miller (Alaska Community Action on Toxics)
- Ms. Sharyle Patton (Commonweal)
- Ms. Lighea Speziale (Confederation of Waste-to-Energy Plants (CEWEP))
- Mr. Mark Trewhitt (CropLife International)
- Mr. Jens Warsen (European Automobile Manufacturers Association (ACEA)),
- Mr. Timo Unger (European Automobile Manufacturers Association (ACEA))
- Ms. Sara Brosché (International Pollutants Elimination Network (IPEN))
- Ms. Eva Kruemmel (Inuit Circumpolar Council)
- Ms. Colleen Hartland (National Toxics Network (NTN) Inc.)

Working group on short-chain chlorinated paraffins

Committee members

- Ms. Tamara Kukharchyk (Belarus)
- Ms. Estefania Moreira (Brazil)
- Mr. Jean-François Ferry (Canada) (Chair)
- Ms. Rikke Holmberg (Denmark)
- Mr. Sam Adu-Kumi (Ghana)
- Ms. Caroline Wamai (Kenya)
- Ms. Ingrid Hauzenberger (Luxembourg)
- Mr. Martien Janssen (Netherlands)
- Mr. Peter Dawson (New Zealand)
- Ms. Victorine Augustine Pinas (Suriname)
- Mr. Andreas Buser (Switzerland)
- Ms. Svitlana Sukhorebra (Ukraine)

Observers

- Mr. Agustin Harte (Argentina)
- Ms. Cynthia Bainbridge (Canada)
- Mr. Mario Vujić (Croatia)
- Ms. Katarína Řiháčková (Czechia)
- Ms. Elham Refaat Abdelaziz (Egypt)
- Ms. Valentina Bertato (European Union)
- Mr. Timo Seppälä (Finland)
- Ms. Sandrine Andres (France)
- Ms. Caren Rauert (Germany)
- Mr. Kazuhide Kimbara (Japan)
- Mr. Akihiko Ikegawa (Japan)
- Mr. Kotaro Akiyama (Japan)

- Mr. Nobutada Kimura (Japan)
- Mr. Noriyasu Nagai (Japan)
- Ms. Hiroko Ichihara (Japan)
- Ms. Aiko Fujitsuka (Japan)
- Ms. Trine Celius (Norway)
- Ms. Christel Moræus Olsen (Norway)
- Ms. Christina Charlotte Tolfsen (Norway)
- Ms. Young Hee Kim (Republic of Korea)
- Ms. Maria Delvin (Sweden)
- Mr. Ian Doyle (United Kingdom of Great Britain and Northern Ireland)
- Ms. Elizabeth Lawton (United Kingdom of Great Britain and Northern Ireland)
- Ms. Monique Perron (United States of America)
- Ms. Elizabeth Nichols (United States of America)
- Ms. Pamela Miller (Alaska Community Action on Toxics)
- Ms. Lighea Speziale (Confederation of Waste-to-Energy Plants (CEWEP))
- Mr. Mark Trewhitt (CropLife International)
- Ms. Sara Brosché (International Pollutants Elimination Network (IPEN))
- Ms. Eva Kruemmel (Inuit Circumpolar Council)
- Ms. Colleen Hartland (National Toxics Network (NTN) Inc.)

Annex III

Workplan for the preparation of risk profiles during the intersessional period between the fifteenth and sixteenth meetings of the Committee

Scheduled date	Interval between activities (weeks)	Activity (for each chemical under review)
4 October 2019		The Committee establishes an intersessional working group.
11 October 2019	1	The Secretariat requests Parties and observers to provide the information specified in Annex E for a risk profile.
2 December 2019	7	Parties and observers submit the information specified in Annex E for a risk profile to the Secretariat.
13 January 2020	6	The working group chair and the drafter complete the first draft.
27 January 2020	2	The members of the working group submit comments on the first draft to the chair and the drafter.
10 February 2020	2	The working group chair and the drafter finish their review of the comments from the working group and complete the second draft and a compilation of responses to those comments.
17 February 2020	1	The Secretariat distributes the second draft to Parties and observers for comments.
30 March 2020	6	Parties and observers submit their comments to the Secretariat.
20 April 2020	3	The working group chair and the drafter review the comments from Parties and observers and complete the third draft and a compilation of responses to those comments.
27 April 2020	1	The Secretariat sends the third draft to the working group.
11 May 2020	2	The members of the working group submit their final comments on the third draft to the chair and the drafter.
25 May 2020	2	The working group chair and the drafter review the final comments and complete the fourth and final draft and a compilation of responses to those comments.
1 June 2020	1	The Secretariat sends the final draft to the Division of Conference Services, United Nations Office at Nairobi, for editing and translation.
27 July 20 2 0	8	The Division of Conference Services completes the editing and translation of the final draft.
3 August 2020	1	The Secretariat distributes the final draft in the six official languages of the United Nations.
14–18 September 2020	6	Sixteenth meeting of the Committee.